Figure 5.9 The Interquartile Range of PM_{10} Concentrations (µg/m³) from Monitoring Sites in BC by Year, Month and Day of Week.

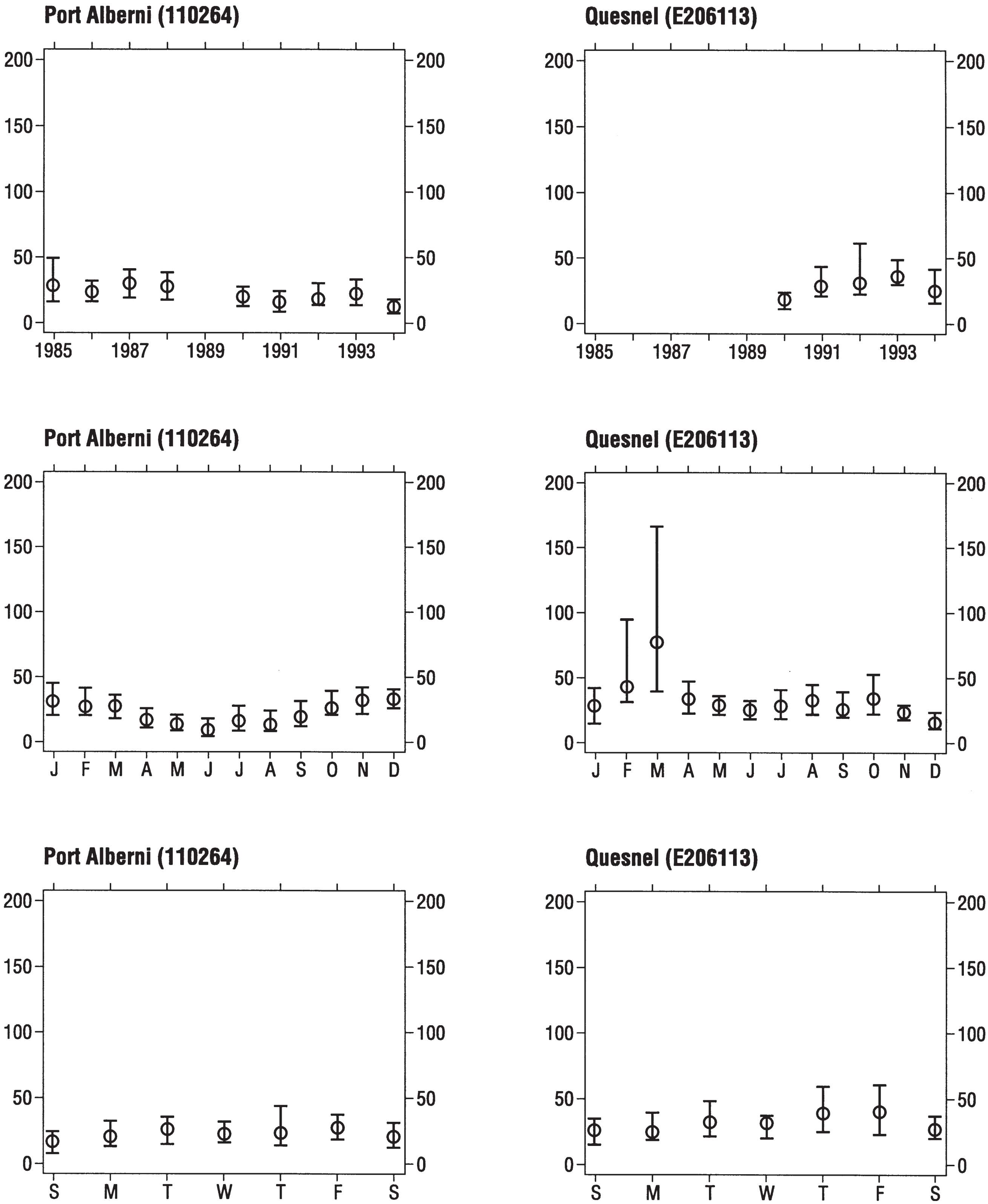


Figure 5.9 The Interquartile Range of PM_{10} Concentrations (µg/m³) from Monitoring Sites in BC by Year, Month and Day of Week. ***(continued)***

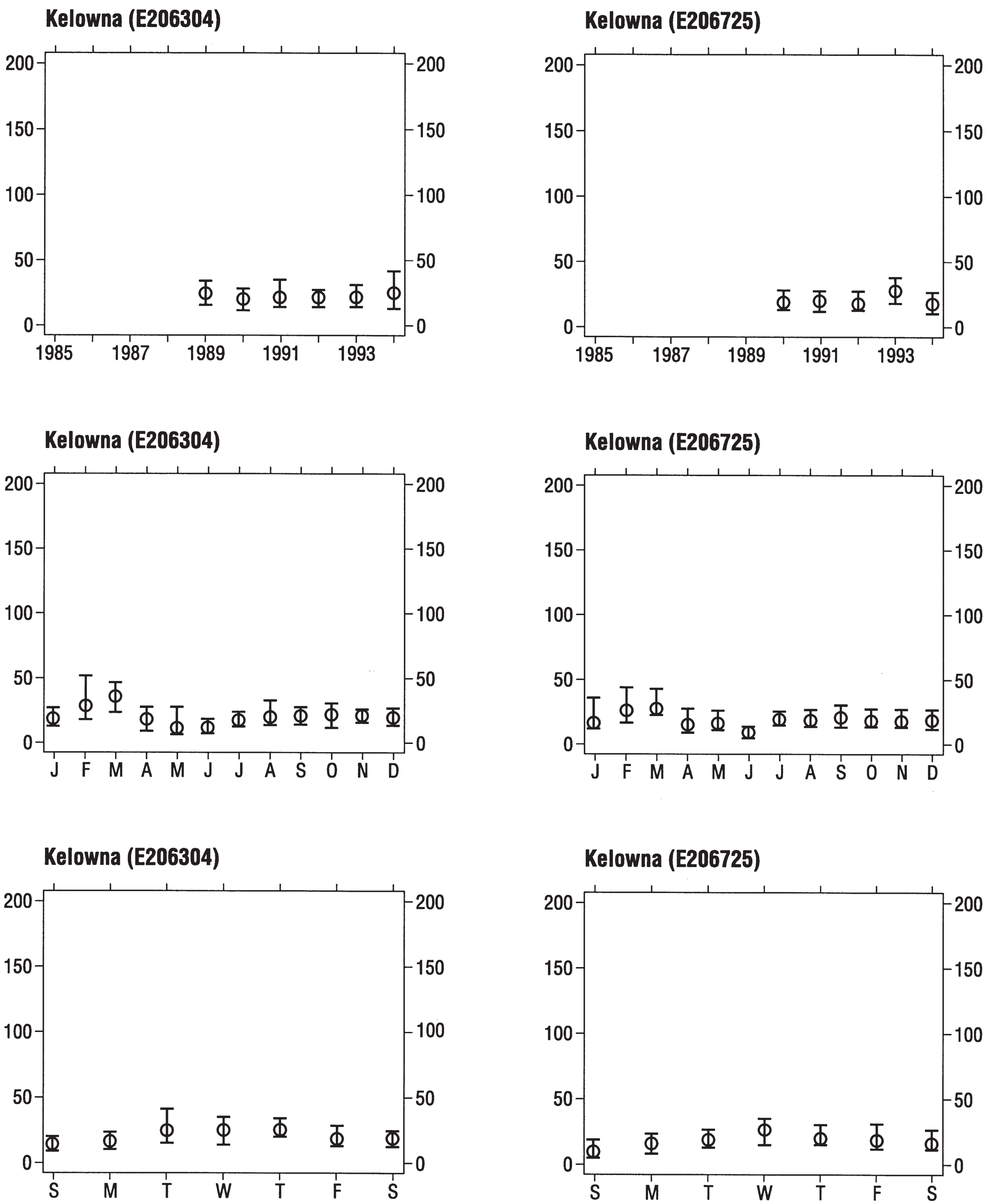


Figure 5.9 The Interquartile Range of PM_{10} Concentrations (µg/m³) from Monitoring Sites in BC by Year, Month and Day of Week. ***(continued)***

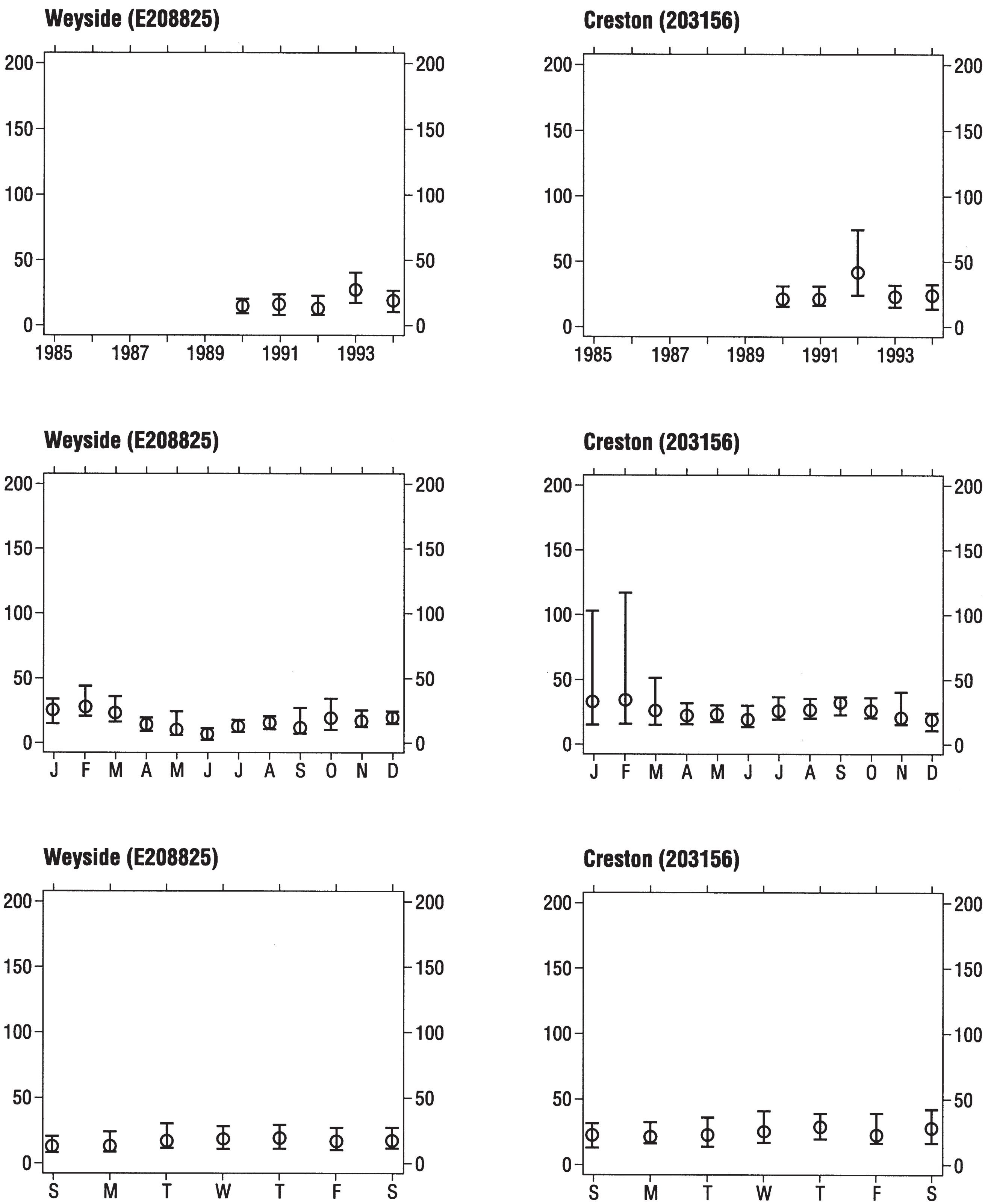


Table 5.12 Frequency Distributions of 24 h Average PM_{10} Concentrations (µg/m³) for Selected Sites in British Columbia.

Station number and location		Arith. Mean	Min	Concentration at the nth percentile 10	30	50	70	90	Max
110264	Port Alberni	25.1	2	8	14	21	30	48	100
605002	Kamloops	20.5	3	7	13	17	23	37	86
E206112	Williams Lake	30.9	3	11	18	24	35	60	125
E206113	Quesnel	40.8	4	12	22	31	39	70	391
E206169	Pitt Meadows	16.8	2	5	9	15	21	32	47
E206241	Cranbrook	44.4	7	12	21	35	57	89	196
E206304	Kelowna	25.7	2	10	16	22	28	46	130
E206589	Smithers	22.6	2	7	13	18	27	41	169
E206725	Kamloops	25.4	2	11	16	22	29	43	95
E206931	Castlegar	27.0	2	12	18	24	30	46	78
E208805	Weyside	22.9	2	9	14	19	26	43	95
E213056	Creston	35.0	2	11	20	25	35	64	419
E213114	Chilliwack	19.0	2	7	12	17	22	33	108

The following inferences may be drawn based upon the results of the χ^2 statistics and Figure 5.9:

1) The year-to-year variation of PM_{10} concentrations is significant at over half of the stations for which sufficient data are available to test the distributions. Note that this is not necessarily indicative of a significant trend in the data. As shown in Figure 5.9, the interquartile range of PM_{10} concentrations at these sites shows no evidence of a trend. Inter-annual variability is often noted in other air quality parameters and may reflect the influence of both changing emission patterns/amounts and the inter-annual variability of meteorological conditions (e.g., Pryor et al., 1995c). The inter-annual variability of both PM_{10} concentrations *and* prevailing meteorology indicates the value of having long-term monitoring stations for use in trend analysis. It also emphasizes the importance of declimatizing air quality data before attempting trend analysis if the implication of a "trend" (positive or negative) is going to be interpreted as evidence of changing emission practices (Pryor et al., 1995c).

2) For most sites, there were insufficient data to examine month-to-month or seasonal variability of PM_{10} concentrations. However, the inference may be drawn from Figure 5.9 that there is seasonality of PM_{10} concentrations. For example, qualitatively, it appears that Quesnel (E206113), Kelowna (E206304) and Kamloops (E206725) exhibit elevated PM_{10} concentrations in March. The winter maximum of PM_{10} concentrations at Port Alberni (110264) is a recurrent feature in the data on an inter-annual basis and may reflect the influence of increased wood burning or decreased mixing depth in the winter. Only data from 110264 (Port Alberni) could be tested using the χ^2 statistic, and it produced a statistically significant result.

3) The χ^2 statistic for mid-week-weekend differences in PM_{10} concentrations is significant at eight of the 13 sites. As shown in Figure 5.9, PM_{10} concentrations are typically highest during the mid-week period and lowest on the weekends. This data feature is also apparent in the NAPS data (see Figure 5.6) and has been observed in data from the Los Angeles Basin (e.g., Hoggan et al., 1989).

Table 5.13 The Results of a Chi-Squared (χ^2) Test Applied to PM_{10} Data from British Columbia.

Station number and location		Data grouped by year		Data grouped by week day (weekend v mid week)
			years used	
110264	Port Alberni	sign. at 99%	1985-1994 (1989 missing)	sign. at 99%
605002	Kamloops	sign. at 90%	1990-1993	sign. at 95%
E206112	Williams Lake	not sign.	1991-1994	sign. at 99%
E206113	Quesnel	sign. at 95%	1991-1994	not sign.
E206169	Pitt Meadows	sign. at 99%	1991-1994	sign. at 95%
E206241	Cranbrook	insufficient data		not sign.
E206304	Kelowna	not sign.	1989-1993	sign. at 99%
E206589	Smithers	not sign.	1990-1993	not sign.
E206725	Kamloops	sign. at 90%	1990-1994	sign. at 99%
E206931	Castlegar	insufficient data		not sign.
E208805	Weyside	sign. at 99%	1990-1994	sign. at 90%
E213056	Creston	sign. at 99%	1991-1994	not sign.
E213114	Chilliwack	not sign.	1991-1994	sign. at 99%

Notes:

(1) Only station 110264 had sufficient data to calculate the χ^2 statistic by month. The result was significant at the 99% confidence level.

(2) χ^2 statistics were calculated only if all time periods (i.e., every year, month and day of the week) had >20 observations.

(3) Mid-week is defined here as Wednesday and Thursday.

The UQM PM_{10} concentrations shown in Figure 5.10 are calculated by year, month and day of the week for the NAPS data. The results of this calculation are in accord with the findings of the χ^2 analysis. Weekday PM_{10} concentrations are typically, but not uniformly, higher than those recorded during the weekends. PM_{10} concentrations are typically highest during the winter (January-March) and show considerable inter-annual variability. Although median PM_{10} concentrations from 1990 are not atypical, 1990 UQM PM_{10} concentrations are lower than during other years. It may be inferred that 1990 was characterized by a lower-than-average frequency or intensity of high particulate loading episodes. Conversely, UQM PM_{10} concentrations from 1993 at five of the six sites shown in Figure 5.10 exhibit above-average standardized values.

Figure 5.10 Standardized Upper Quartile Mean (UQM) PM_{10} Concentrations at British Columbia Sites by a) Year b) Month and c) Day of Week.

a)

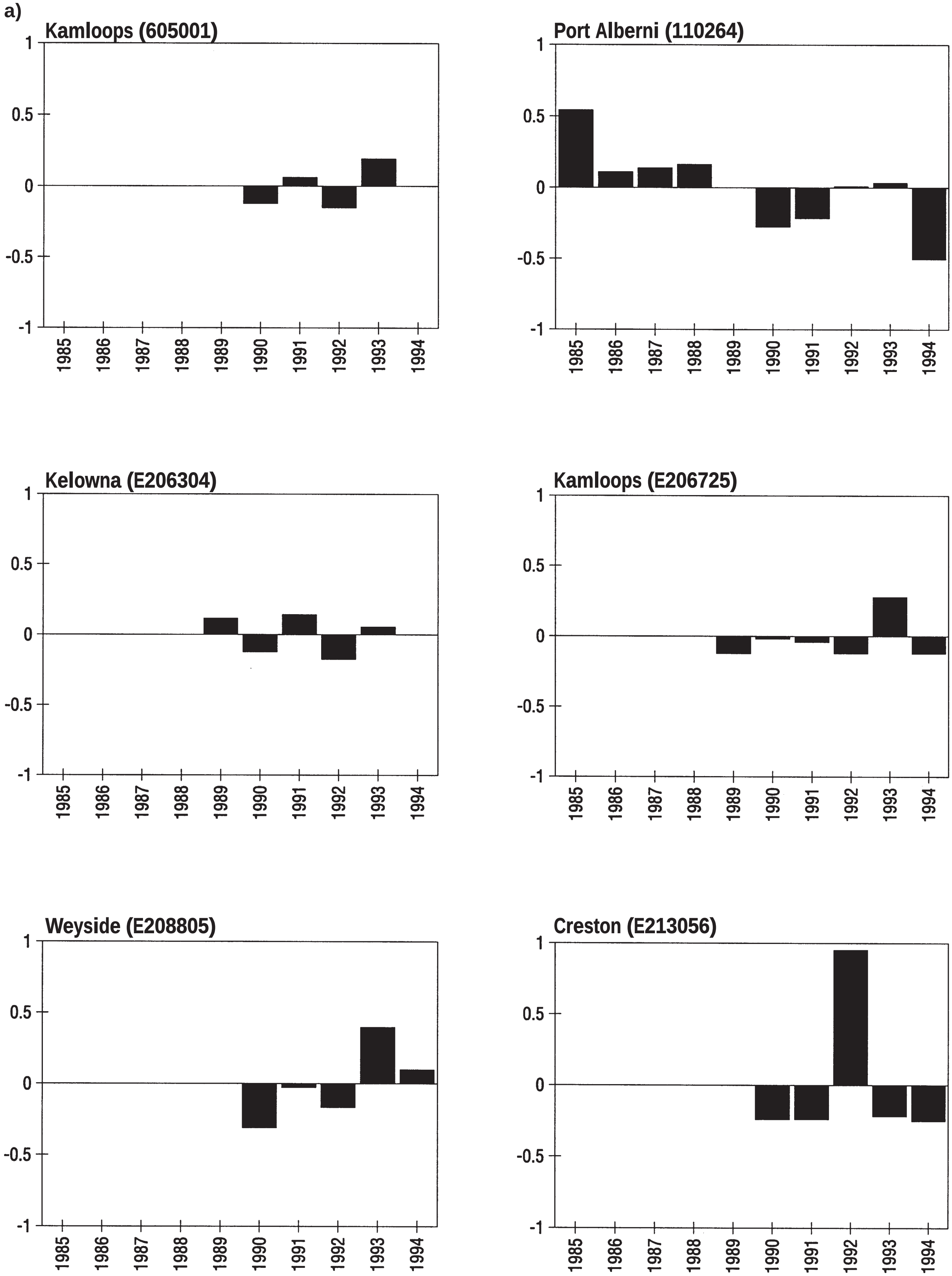


Figure 5.10 Standardized Upper Quartile Mean (UQM) PM_{10} Concentrations at British Columbia Sites by a) Year b) Month and c) Day of Week. ***(continued)***

b)

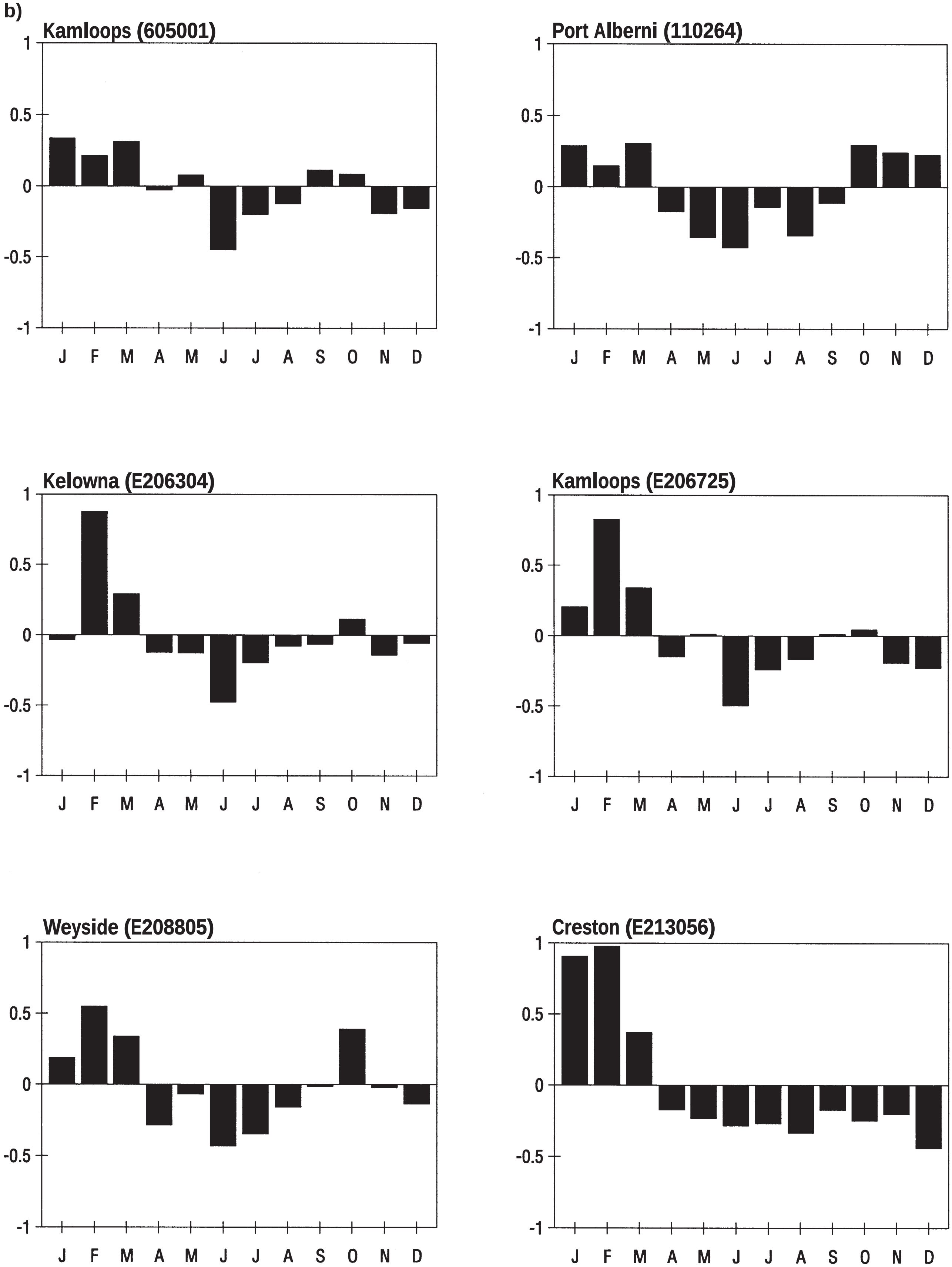


Figure 5.10 Standardized Upper Quartile Mean (UQM) PM_{10} Concentrations at British Columbia Sites by a) Year b) Month and c) Day of Week. ***(continued)***

c)

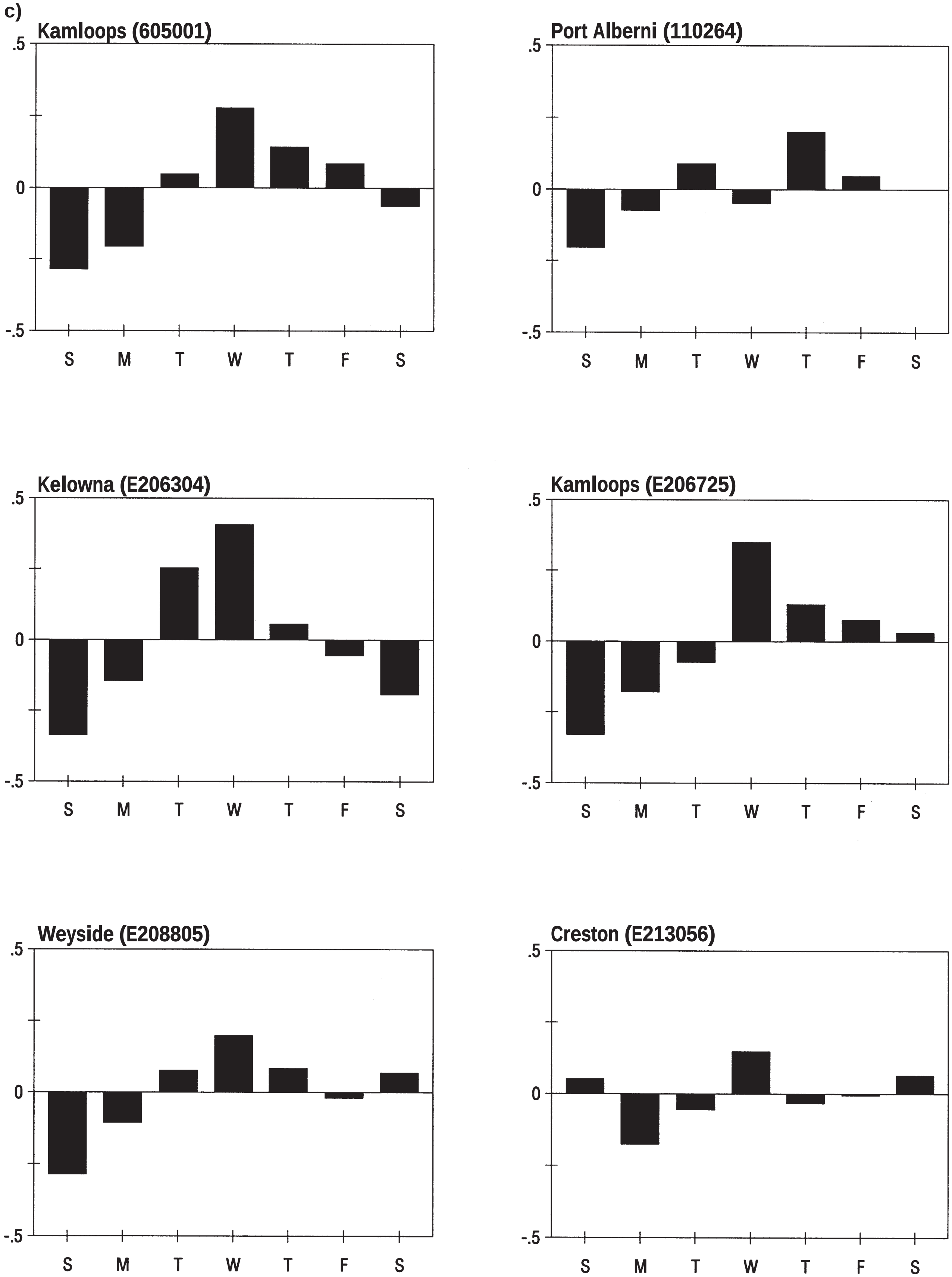


Figure 5.11 The Interquartile Range of PM_{10} Concentrations (μg/m³) from Monitoring Sites in Ontario by Month and Day of Week.

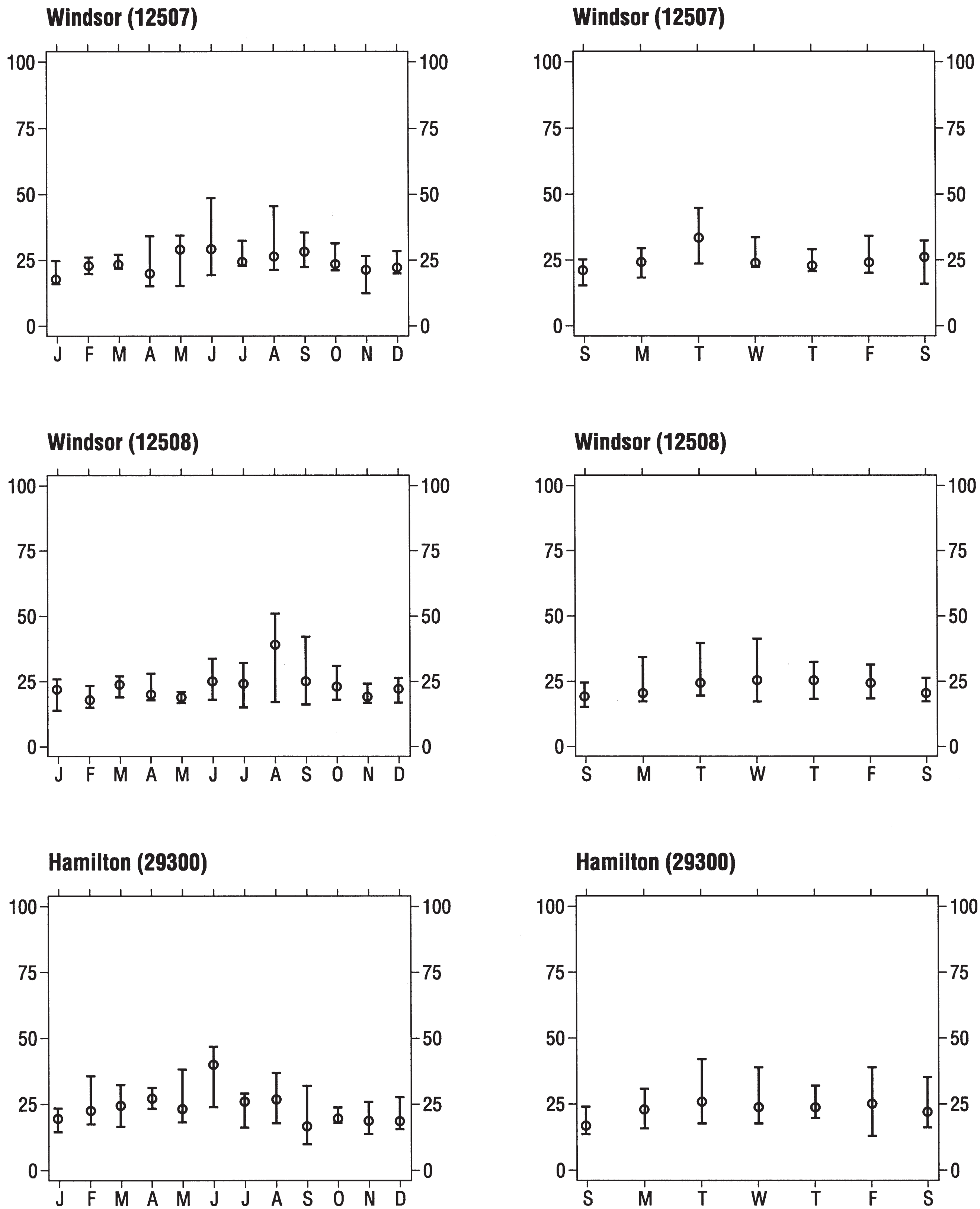


Figure 5.11 The Interquartile Range of PM_{10} Concentrations ($\mu g/m^3$) from Monitoring Sites in Ontario by Month and Day of Week. ***(continued)***

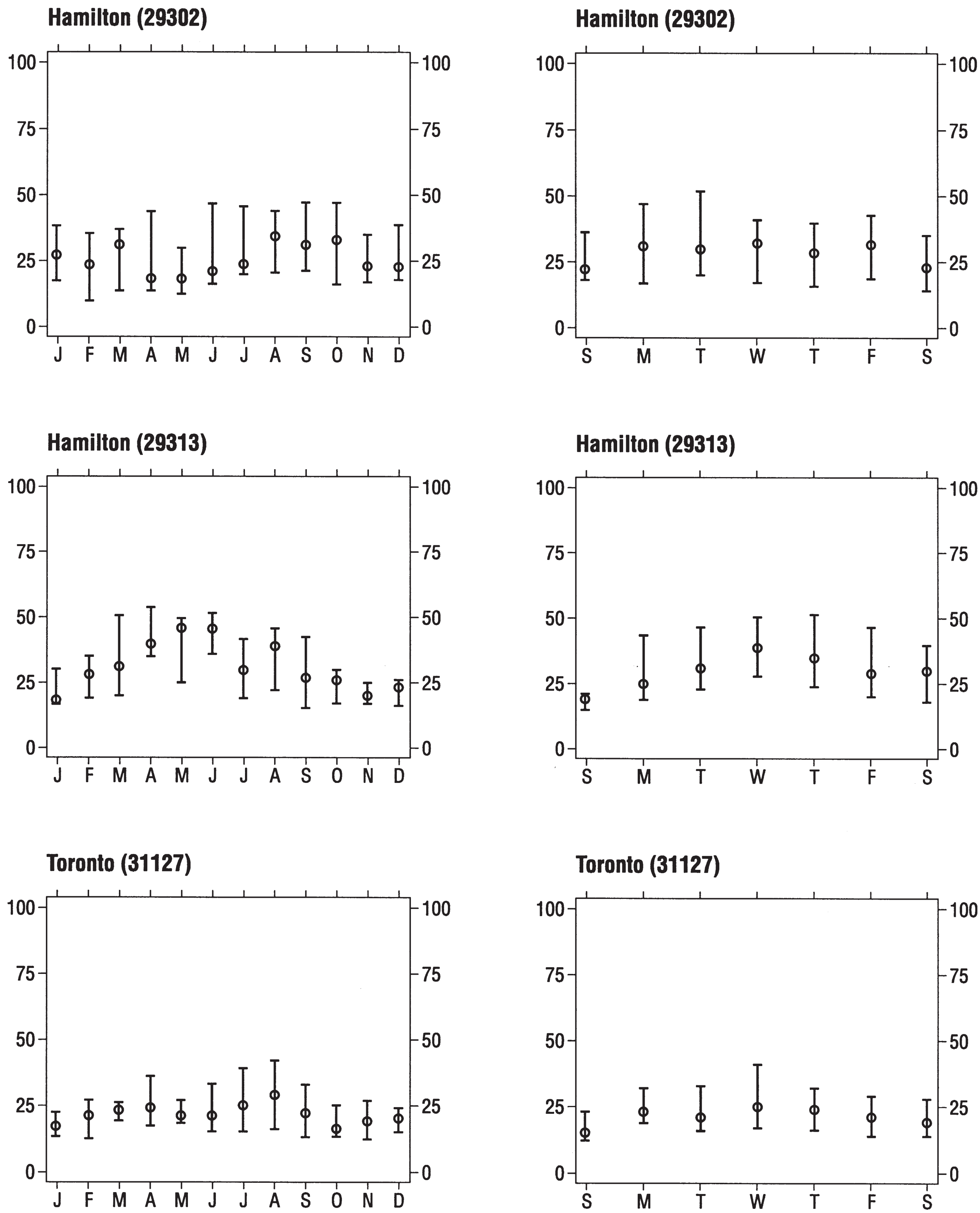


Figure 5.11 The Interquartile Range of PM_{10} Concentrations (μg/m³) from Monitoring Sites in Ontario by Month and Day of Week. *(continued)*

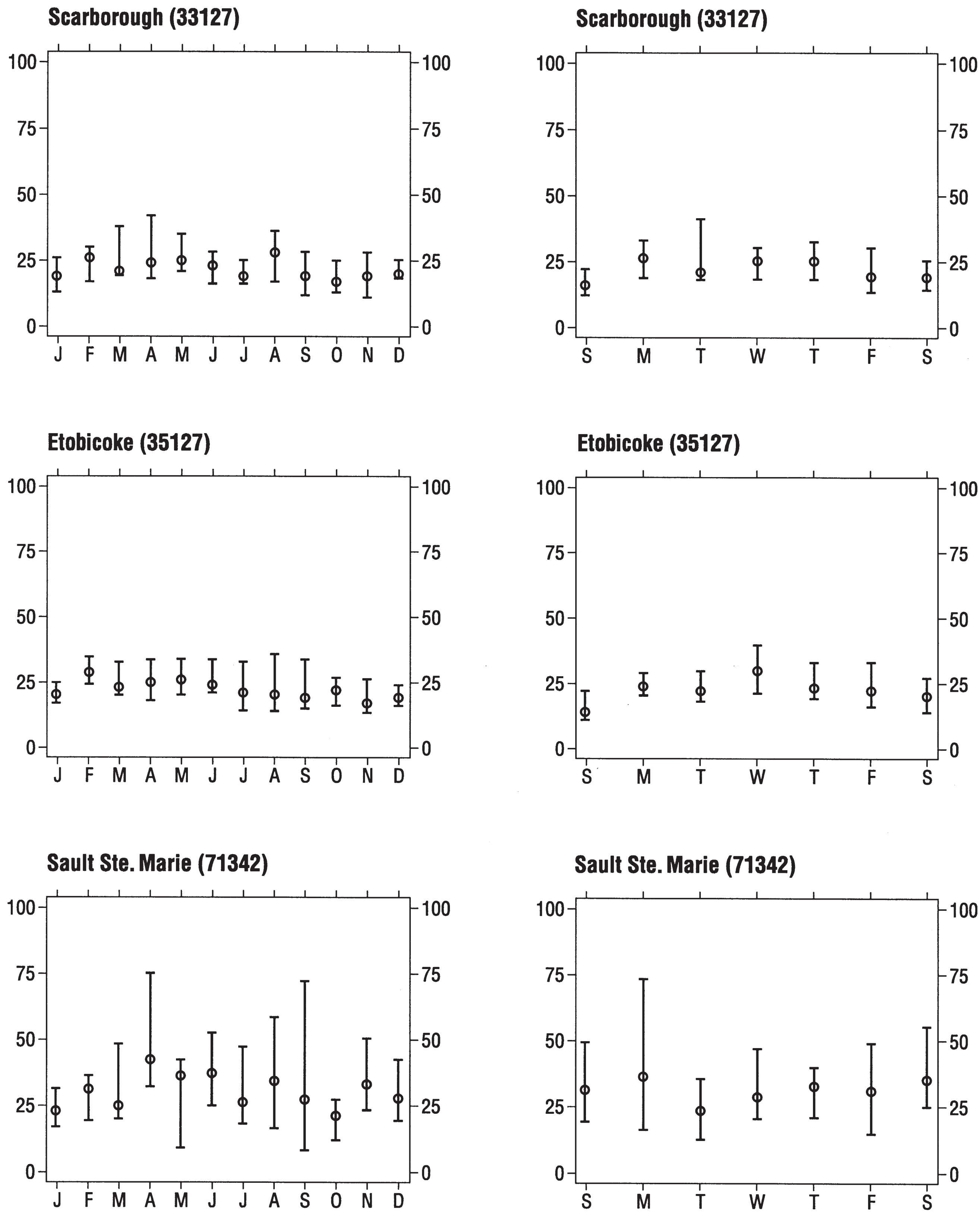
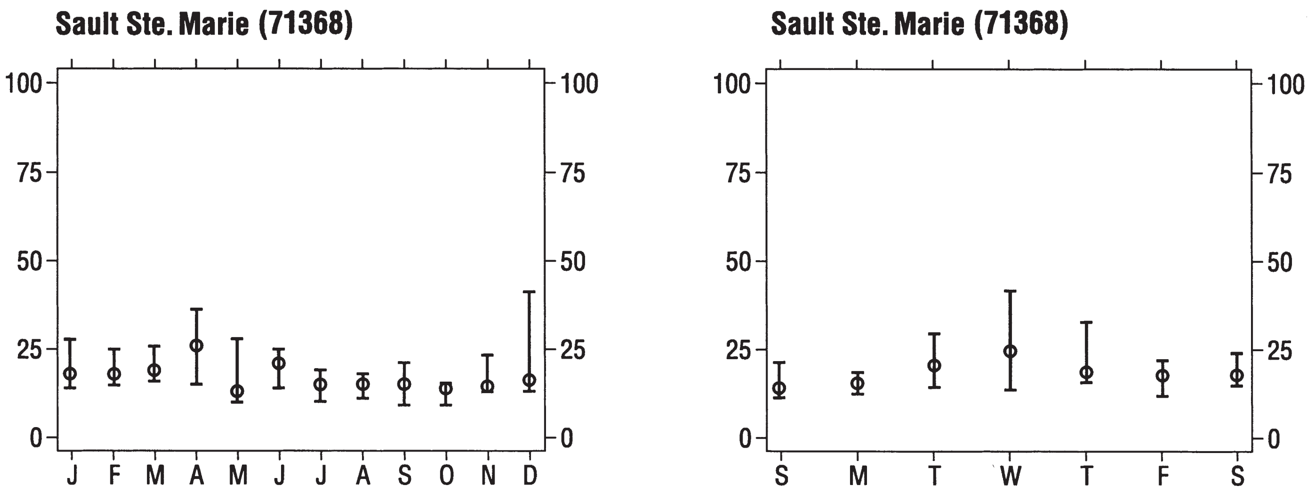


Figure 5.11 The Interquartile Range of PM_{10} Concentrations (µg/m³) from Monitoring Sites in Ontario by Month and Day of Week. ***(continued)***



Ontario

Table 5.14 summarizes the frequency distributions of PM_{10} concentration data from 18 of the PM_{10} network sites currently operated as part of the Ontario Inhalable Particulates Network. Again, the frequency distributions are similar to those that characterize the NAPS and BC sites. Figure 5.11 shows the interquartile ranges of these data by month and day of the week. Unfortunately, the data were not available to calculate the χ^2 statistics or UQM concentrations. It is interesting to note however, that the data typically exhibit a summertime maximum, as observed in the NAPS data from Ottawa and Windsor, and a weak mid-week maximum.

Table 5.14 Frequency Distributions of 24 h Average PM_{10} Concentrations (µg/m^3) for Sites in Ontario.

Site #		Year		Mean		Min	Percentiles					Max
		From - To		Arith.	Geom		10	30	50	70	90	
12507	Windsor	90	93	27	25	9	14	21	25	30	48	118
12508	Windsor	89	93	27	24	10	14	18	23	30	47	84
15516	London	90	93	19	16	5	9	12	15	21	36	56
22304	Nanticoke	92	94	17	14	1	7	10	14	18	31	69
27308	St. Catherines	91	93	22	19	2	10	15	19	23	37	70
27352	Thorold	90	93	33	29	9	14	22	27	35	60	100
29300	Hamilton	90	93	28	24	6	13	18	23	32	49	97
29302	Hamilton	89	93	32	27	6	10	20	30	39	55	130
29313	Hamilton	90	93	35	30	8	15	21	30	42	59	110
29324	Hamilton	92	93	24	20	4	10	14	18	27	41	79
31127	Toronto	89	93	27	23	7	12	17	21	28	47	120
33127	Scarborough	90	93	26	22	3	11	18	21	28	44	100
35127	Etobicoke	90	93	26	23	9	13	19	22	30	41	81
44127	Oakville	92	93	22	19	4	8	15	19	25	36	92
63201	Thunder Bay	89	93	19	16	4	8	12	16	22	33	63
71342	Sault Ste. Marie	89	93	40	30	4	10	21	32	44	77	190
71368	Sault Ste. Marie	90	93	23	19	4	10	14	18	24	41	100
77326	Sudbury	91	93	18	16	5	9	12	14	20	32	59

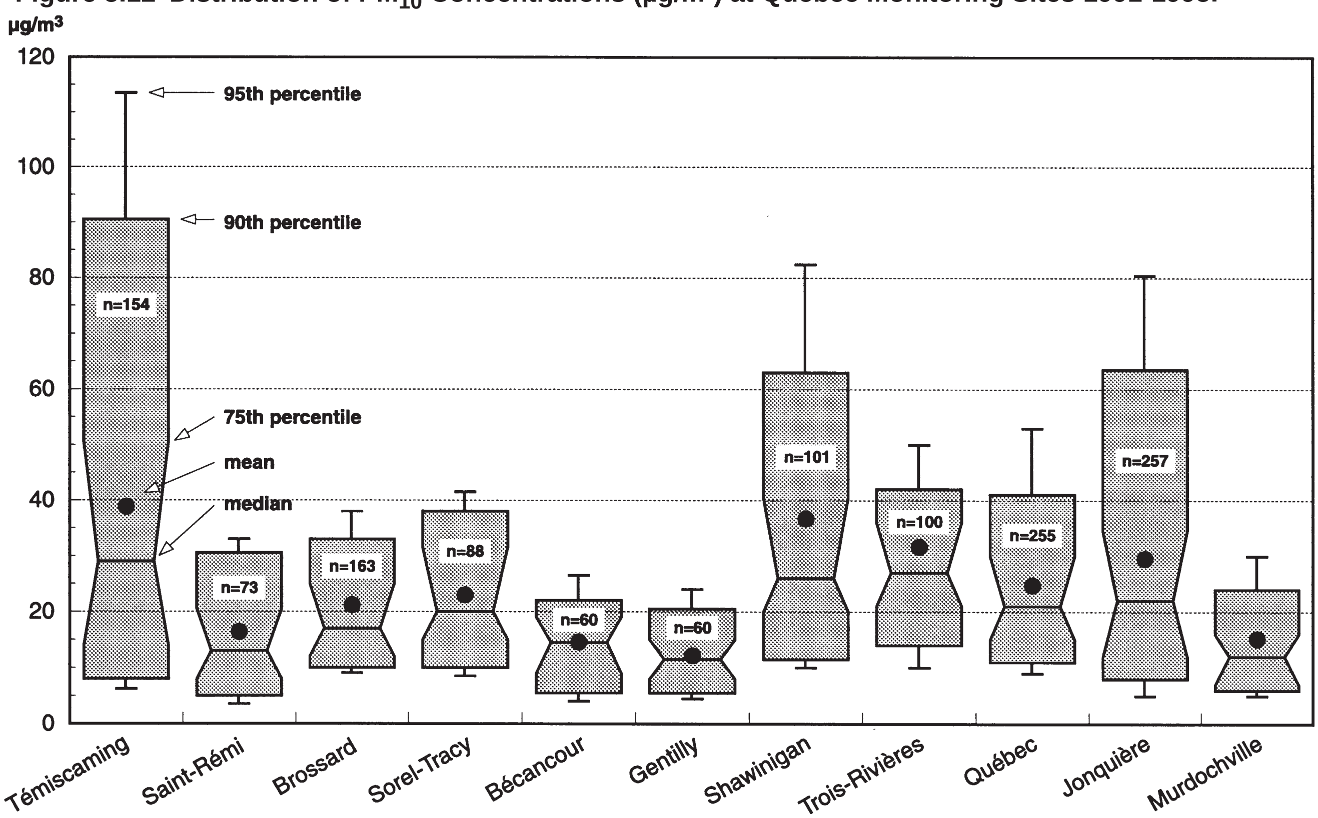
Québec

Results from 11 provincial monitoring sites are summarized in Table 5.15 and in Figure 5.12. A number of these sites are impacted by industrial sources and show generally higher PM_{10} maxima and 90th percentiles than nonindustrial urban locations. The sites in Témiscaming, Shawinigan, Trois-Rivières and Jonquière recorded the highest values with mean PM_{10} concentrations ranging from 29 to 39 µg/m³ and 24 h maxima ranging from 70 to 323 µg/m³. At the Témiscaming site, 25% of the readings were greater than or equal to 50 µg/m³. An analysis of seasonal and day of week variability was not carried out for these sites.

Table 5.15 Frequency Distributions of 24 h Average PM_{10} Concentrations (µg/m³) for Sites in Québec.

			Percentiles							
Prov. ID	**City**	**N**	**10**	**25**	**50**	**75**	**90**	**Max.**	**Mean**	**Geometric Mean**
08401	Témiscaming	154	10	14	29	50	86	210	39	27
06802	Saint-Rémi	73	7	8	13	20	30	52	15	13
06760	Brossard	163	11	12	18	25	33	69	20	18
06672	Sorel-Tracy	88	11	15	20	31	37	65	23	20
04505	Bécancour	60	7	9	15	19	22	33	14	12
04504	Gentilly	60	7	8	12	15	20	33	12	11
04130	Shawinigan	101	14	20	26	40	62	323	35	27
04019	Trois-Rivières	100	16	21	27	36	41	70	29	26
03006	Québec	255	12	15	21	31	41	70	24	20
02016	Jonquière	257	10	12	22	36	63	280	29	24
01804	Murdochville	101	7	7	12	16	24	59	14	12

Figure 5.12 Distribution of PM_{10} Concentrations (µg/m³) at Quebec Monitoring Sites 1991-1995.



Summary

Mean 24 h PM_{10} concentrations in Canadian cities are between 4 and 8 times the background levels estimated by Trijonis et al. (1990) for the western and eastern United States (Table 5.2). The clear implication is that anthropogenic activities make a substantial contribution to ambient PM_{10} levels.

Although the mean 24 h PM_{10} concentrations recorded at monitoring sites throughout Canada fall within a relatively narrow range, there is significant variability of measured PM_{10} concentrations on both temporal and spatial scales. The highest PM_{10} concentrations recorded by the NAPS monitoring network were observed in Québec and Ontario (at sites in Montréal, Windsor, Toronto and Walpole Island) and at a single site in Calgary, Alberta. The Windsor-Québec City corridor has previously been identified as a region of poor air quality (McKendry, 1993). However, even within this area, some sites experience comparatively low ambient PM_{10} levels when the entire distribution of PM_{10} measurements is examined (e.g., Ottawa and Québec City). Comparison of measurements from national and provincial networks indicates that the extremes of the frequency distribution of PM_{10} measurements at sites within the same province and even within the same city show a high degree of variability. Local sources of particulate emissions can play a significant role in determining ambient PM_{10} concentrations.

PM_{10} concentrations also vary by month, day of the week and hour of the day. The season of maximum PM_{10} concentrations appears to be regionally variable, reflecting variations in dominant sources of PM_{10} (especially secondary aerosols) and synoptic meteorology. In accord with Figure 5.5 and 5.8b, the sites that exhibit the highest degree of seasonality in the upper quartile of PM_{10} concentrations are in Windsor (a summertime maximum) and Victoria (a wintertime maximum). Many of the sites in British Columbia seem to exhibit late winter-spring maxima of both mean and median PM_{10} concentrations and the upper quartile of the distribution (Figure 5.10). This indicates that both average and extreme PM_{10} concentrations are typically higher during the months of January, February and March. Sites in the Ontario Inhalable Particulates Network seem to exhibit a summertime maximum of the interquartile range and monthly mean PM_{10} concentrations (in accord with Ontario data from the NAPS network). These provincial differences may reflect the greater abundance of secondary aerosols in the Windsor-Québec City corridor, where precursor concentrations are known to be high. A hebdomadal cycle of PM_{10} concentrations is evident at most sites described here. Typically, weekend concentrations of PM_{10} are lower than those observed during the workweek. The sites that do not exhibit this cycle tend to be located in rural environments.

PM_{10} data from three networks operated within Canada have been presented in the form of frequency distributions, average concentrations and UQMs, so that the entire distribution of PM_{10} concentrations may be examined. However, it should be noted that the current strategy of monitoring one day in six does not permit the extremes of the concentration distribution to be accurately quantified. The one-in-six-day schedule likely underestimates the frequency of PM_{10} extreme events because the nearest days to the event day, and on the event day itself, may be missed by the sampling schedule. The values for the lowest percentiles (30th percentile and below) reflect the lowest measured concentrations and so are impacted by the minimum detectable limit (MDL), treatment of values below the MDL and instrument/measurement accuracy. These may vary by instrument and collection agency.

5.3.4 24 h Average $PM_{2.5}$ Concentrations

National Network (NAPS)

Frequency distributions of $PM_{2.5}$ concentrations for the dichotomous sampler sites (Table 5.3) are provided in Table 5.16. Mean concentrations at the urban sites ranged from 8.5 to 20.2 µg/m³. The highest $PM_{2.5}$ concentrations (in terms of means and 90th percentiles) were measured at sites in Montréal, Windsor, Hamilton, Walpole Island, Toronto and Vancouver. Most of these same sites also recorded the highest PM_{10} concentrations. The three rural sites of Kejimkujik, Sutton and Egbert record mean $PM_{2.5}$ concentrations of 7.0, 7.7 and 10.5 µg/m³ respectively, although observations were only available for 1992-1995 for Kejimkujik and Egbert and for May-September, 1993 for Sutton. As noted, relatively high $PM_{2.5}$ values were recorded at the other rural site at Walpole Island. This may be due to the effect of nearby agricultural operations and due to its proximity to metropolitan Detroit.

Table 5.16 Frequency Distributions of 24 h Average $PM_{2.5}$ Concentrations (µg/m³) from Dichotomous Sampler Sites (1984-1995) – National Network.

NAPS ID	City	N	Min.	Percentiles					Max.	Mean	Std. Dev.
				10.0	30.0	50.0	70.0	90.0			
10101	St. John's	39	1.0	3.0	6.0	9.0	11.0	18.0	26.0	9.8	5.7
40203	Saint John	821	0.6	2.5	4.8	7.2	10.0	16.2	53.2	8.5	6.2
30101	Halifax	335	2.8	6.0	10.0	12.0	15.6	25.0	45.5	14.0	7.1
30118	Halifax	273	0.8	4.6	6.0	7.4	9.6	15.1	43.4	9.0	5.5
30119	Dartmouth	83	0.7	3.1	4.5	6.3	7.7	10.9	23.5	6.9	4.0
30501	Kejimkujik	506	0.4	2.0	3.3	4.8	7.3	13.6	46.7	7.0	7.1
50104	Montréal	849	1.4	5.3	8.9	12.5	17.8	29.0	69.6	15.2	10.3
50109	Montréal	373	0.6	7.4	12.4	17.0	23.0	36.0	89.0	20.2	13.0
50307	Québec City	267	0.4	4.0	6.9	9.0	13.0	23.0	49.0	11.5	8.1
50308	Québec City	40	0.1	3.0	4.5	7.3	9.1	19.1	32.9	9.0	7.2
54101	Sutton	136	1.0	2.4	4.1	6.1	9.1	15.6	33.2	7.7	5.5
60104	Ottawa	569	1.2	3.9	6.0	9.0	14.0	24.0	53.8	12.0	8.8
60204	Windsor	367	1.8	6.5	11.0	15.5	21.6	32.2	70.6	17.9	11.1
60211	Windsor	615	1.8	6.7	10.3	15.0	19.7	31.2	85.6	17.4	11.3
60417	Toronto	282	1.4	6.4	10.0	14.0	19.0	29.0	71.0	16.4	10.5
60424	Toronto	599	1.3	5.2	8.1	12.6	18.4	30.4	66.4	15.5	10.6
60403	Toronto	96	3.1	5.8	9.5	14.8	20.1	28.0	43.0	15.9	9.0
60512	Hamilton	329	1.9	5.6	10.4	15.2	22.2	33.4	74.1	18.1	12.1
61901	Walpole Island	330	2.0	4.4	8.7	13.3	21.0	36.6	126.6	17.9	14.8
64401	Egbert	304	0.7	2.6	4.8	7.7	12.6	21.9	47.7	10.5	8.5
70119	Winnipeg	567	0.9	4.0	6.3	8.4	11.1	17.0	81.0	10.1	7.4
90130	Edmonton	588	0.4	4.2	6.4	8.7	11.6	21.0	56.3	10.8	7.6
90204	Calgary	145	2.0	6.0	9.0	11.0	15.0	28.0	52.0	14.3	9.8
90227	Calgary	472	1.8	4.0	6.0	8.1	11.0	17.0	42.0	9.8	6.4
100106	Vancouver	109	3.0	7.0	9.0	13.0	18.0	39.0	72.0	17.3	12.6
100111	Vancouver	597	2.1	6.0	9.0	12.0	16.0	24.6	62.0	14.1	8.8
100118	Vancouver	343	1.3	5.2	8.0	11.0	14.0	24.0	49.0	12.9	8.0
100303	Victoria	508	0.5	3.6	5.7	8.1	12.0	22.0	59.8	10.7	8.0

Figure 5.13 provides the interquartile range of $PM_{2.5}$ by year, month and day of week for selected sites (urban sites with most complete data record plus rural sites). The seasonal variability of $PM_{2.5}$ is even more pronounced than that of PM_{10}. The Montréal, Ottawa, Edmonton, Calgary and Vancouver/Victoria sites record higher $PM_{2.5}$ concentrations in the winter months and in particular during January and February. The Ontario sites record the highest concentrations in the summer months with a peak median in August. The Maritime sites show variable seasonal variation in $PM_{2.5}$ concentrations with Saint John and Kejimkujik showing a strong summer maximum and Halifax a winter maximum. Most urban sites show minimum $PM_{2.5}$ concentrations on Sunday with maximum concentrations usually occurring during the middle of the week. Using results for all sites, mean mid-week (Tuesday/Wednesday) $PM_{2.5}$ concentrations were 23% higher than Sunday means. For the roadway sites, the differences were larger – up to a 60% increase in $PM_{2.5}$. This indicates that there are large day-of-the-week differences in anthropogenic emissions and significant contributions from motor vehicles.

Yearly variations in $PM_{2.5}$ concentrations during the 1984 to 1995 sampling period (1995 incomplete for most sites) are also shown in Figure 5.13. There is an apparent decrease in $PM_{2.5}$ concentrations at most sites with a complete data record, with the largest percentage decreases occurring at the Montréal-Duncan/Décarie, Edmonton and Vancouver-Rocky Point sites. A trend analysis of $PM_{2.5}$ data carried out by Dann, 1994 for the period 1984-93 showed a statistically significant ($p < 0.001$) decreasing trend in $PM_{2.5}$ on a national basis averaging 3.3% per year. For the Ontario sites, there was no significant change in $PM_{2.5}$ between 1987 and 1993.

$PM_{2.5}$ concentrations are more spatially homogeneous than PM_{10}. There is still significant site to site differences even within the same urban area.
The effect of being located near a busy traffic area is exhibited by the roadway site in Montréal (Duncan/Décarie). $PM_{2.5}$ concentrations at this site are higher and more variable than at the downtown site (Ontario Street). This suggests that the vehicles near Duncan St. are contributing a substantial amount of primary and/or secondary fine particles leading to an increase in mean annual $PM_{2.5}$. The magnitude of this vehicular/roadway source is largest in the winter with an increase in mean $PM_{2.5}$ of 4.6 µg/m³. In summer the difference is only 1.5 µg/m³ (matched sampling days). Such within-city differences are not unique to Montréal. For corresponding sampling days during 1995, a roadway site in Toronto (Evans Ave.) recorded mean $PM_{2.5}$ concentrations that were 3.4 µg/m³ higher than the downtown Toronto site (Bay and Grosvenor).

Figure 5.13 The Interquartile Range of $PM_{2.5}$ Concentrations (µg/m³) at National Network Sites by Year, Month and Day of Week. The Plots Indicate the Median, 25th and 75th Percentiles.

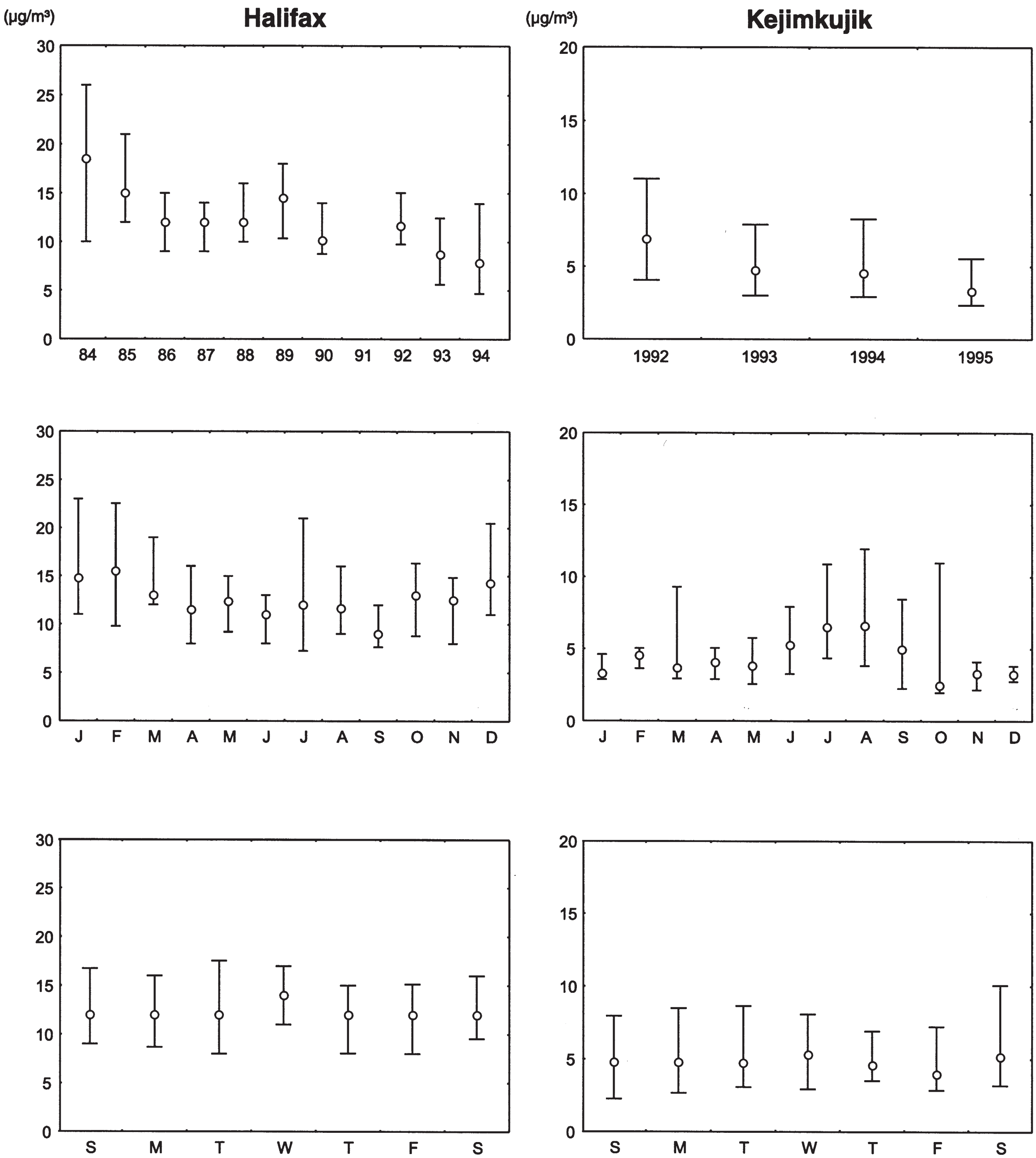


Figure 5.13 The Interquartile Range of $PM_{2.5}$ Concentrations (µg/m³) at National Network Sites by Year, Month and Day of Week. The Plots Indicate the Median, 25th and 75th Percentiles. ***(continued)***

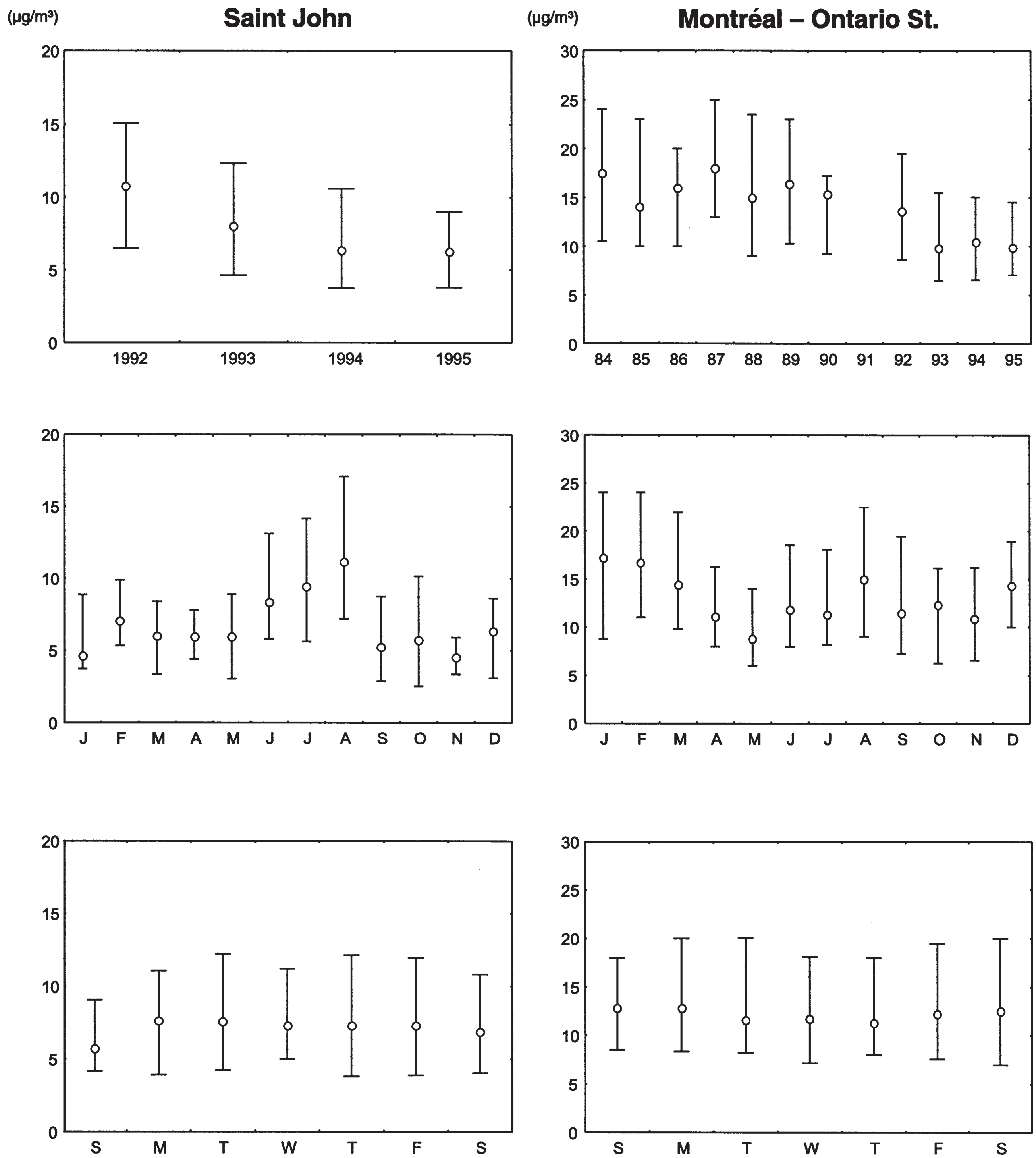


Figure 5.13 The Interquartile Range of $PM_{2.5}$ Concentrations ($\mu g/m^3$) at National Network Sites by Year, Month and Day of Week. The Plots Indicate the Median, 25th and 75th Percentiles. ***(continued)***

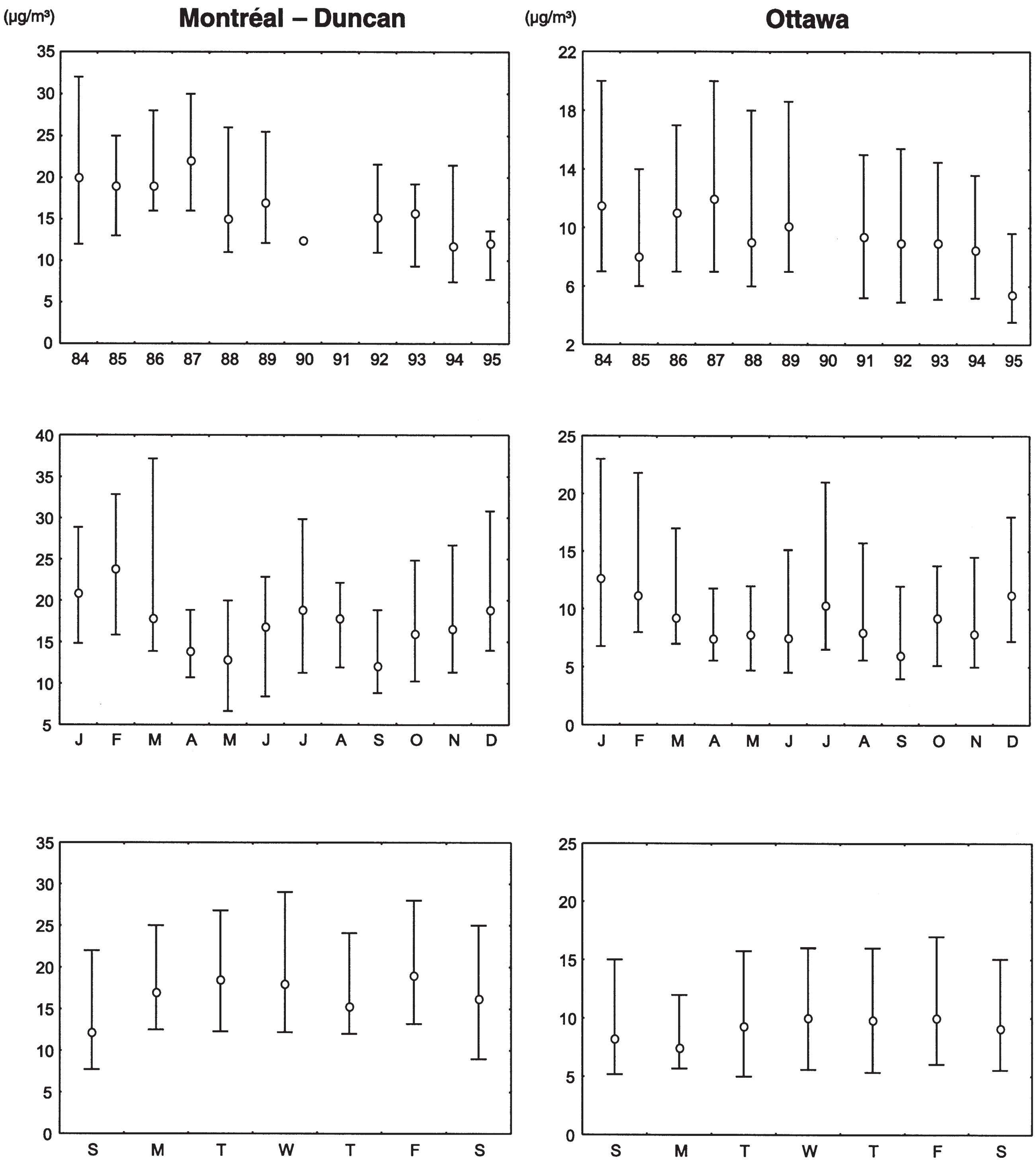


Figure 5.13 The Interquartile Range of $PM_{2.5}$ Concentrations (µg/m³) at National Network Sites by Year, Month and Day of Week. The Plots Indicate the Median, 25th and 75th Percentiles. ***(continued)***

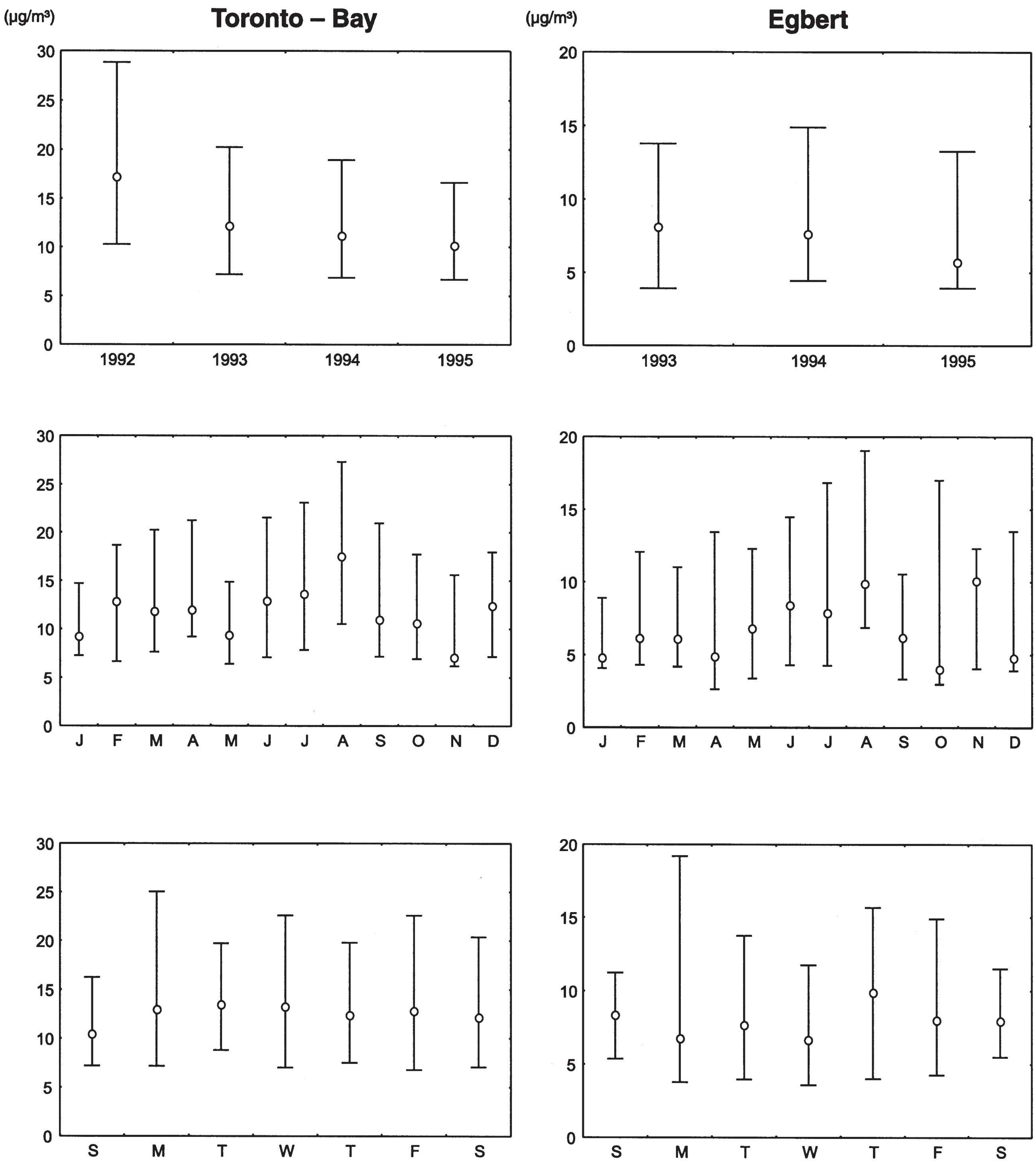


Figure 5.13 The Interquartile Range of $PM_{2.5}$ Concentrations (µg/m³) at National Network Sites by Year, Month and Day of Week. The Plots Indicate the Median, 25th and 75th Percentiles. ***(continued)***

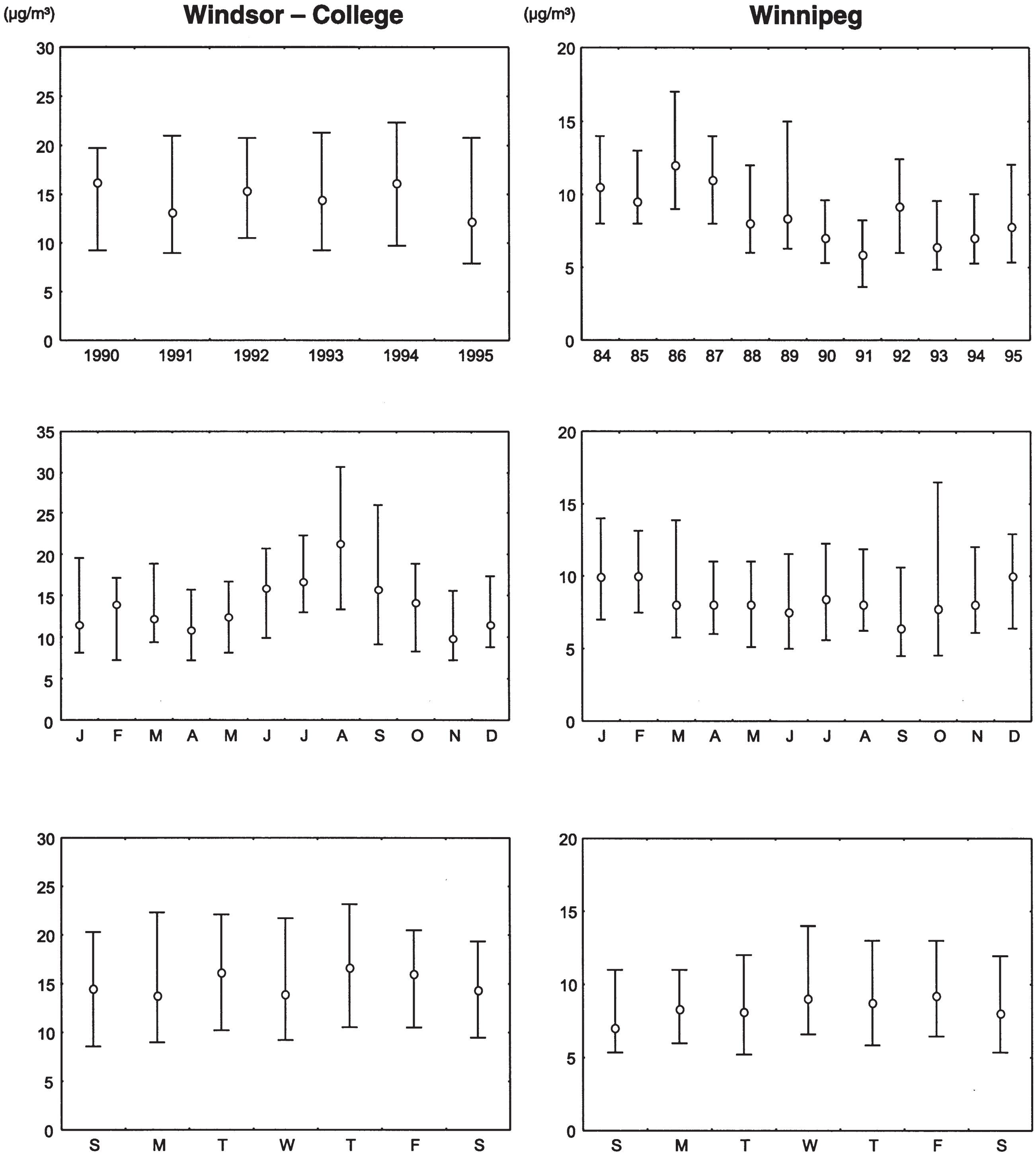


Figure 5.13 The Interquartile Range of $PM_{2.5}$ Concentrations (μg/m³) at National Network Sites by Year, Month and Day of Week. The Plots Indicate the Median, 25th and 75th Percentiles. ***(continued)***

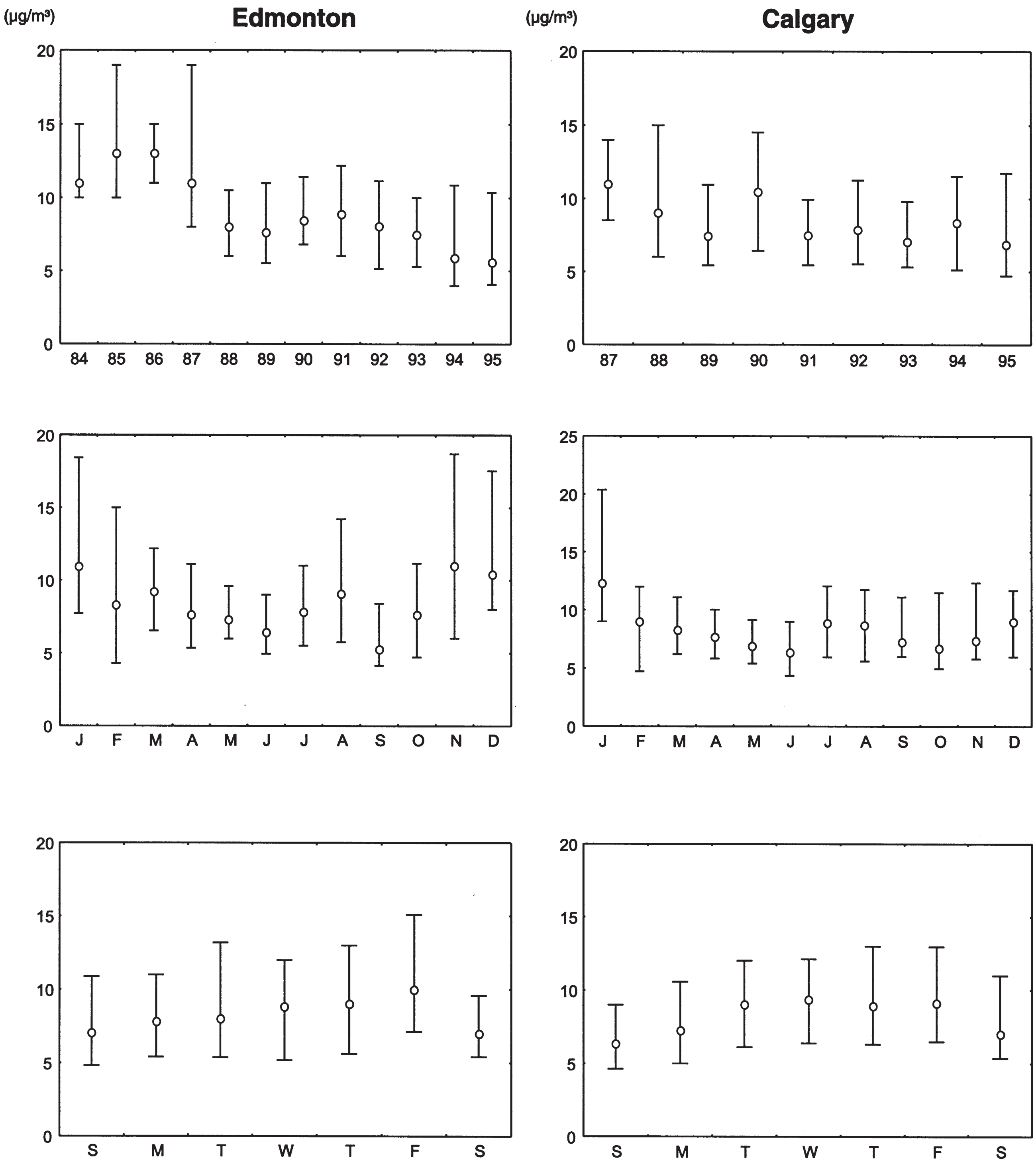


Figure 5.13 The Interquartile Range of $PM_{2.5}$ Concentrations (µg/m³) at National Network Sites by Year, Month and Day of Week. The Plots Indicate the Median, 25th and 75th Percentiles. ***(continued)***

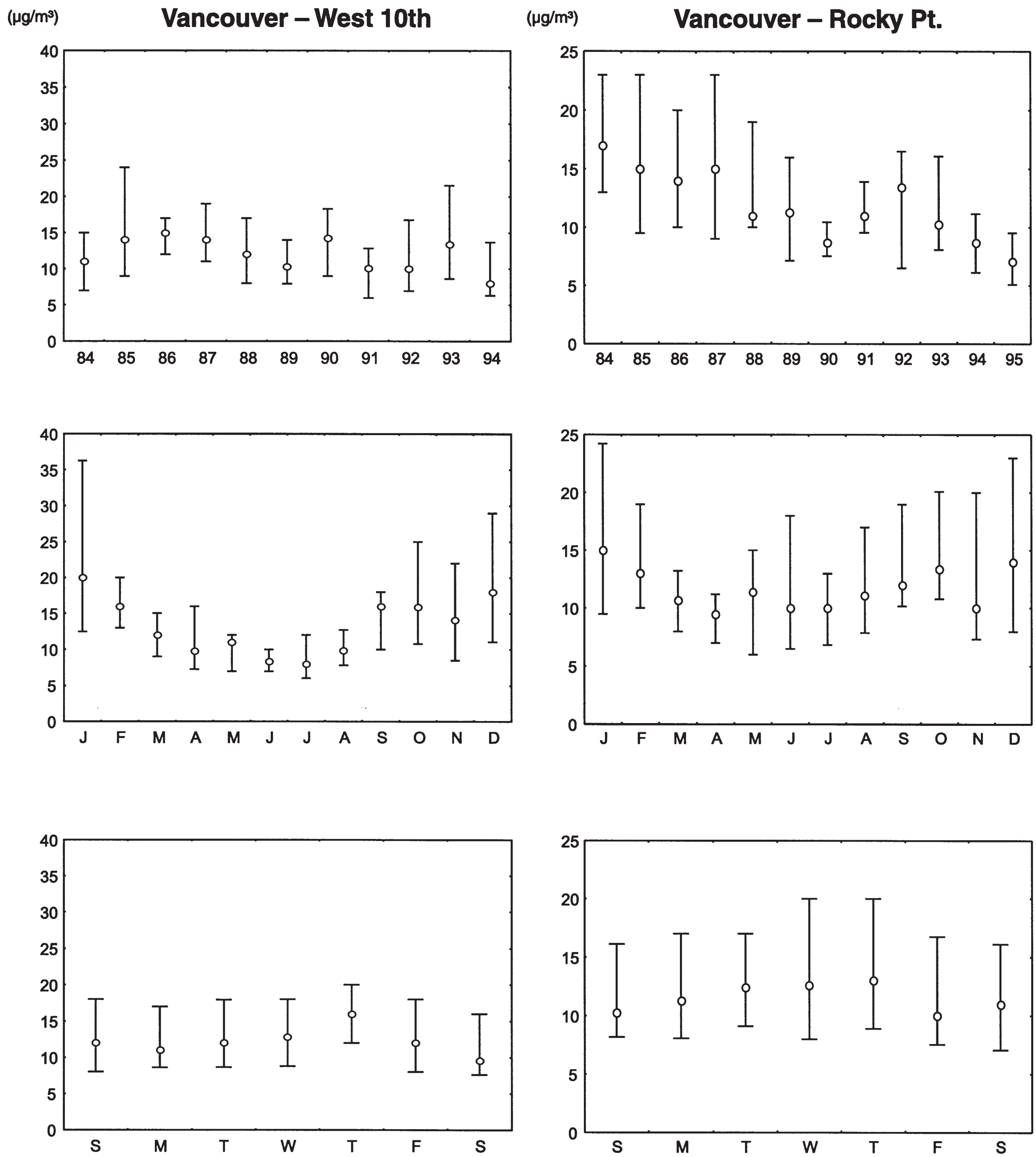
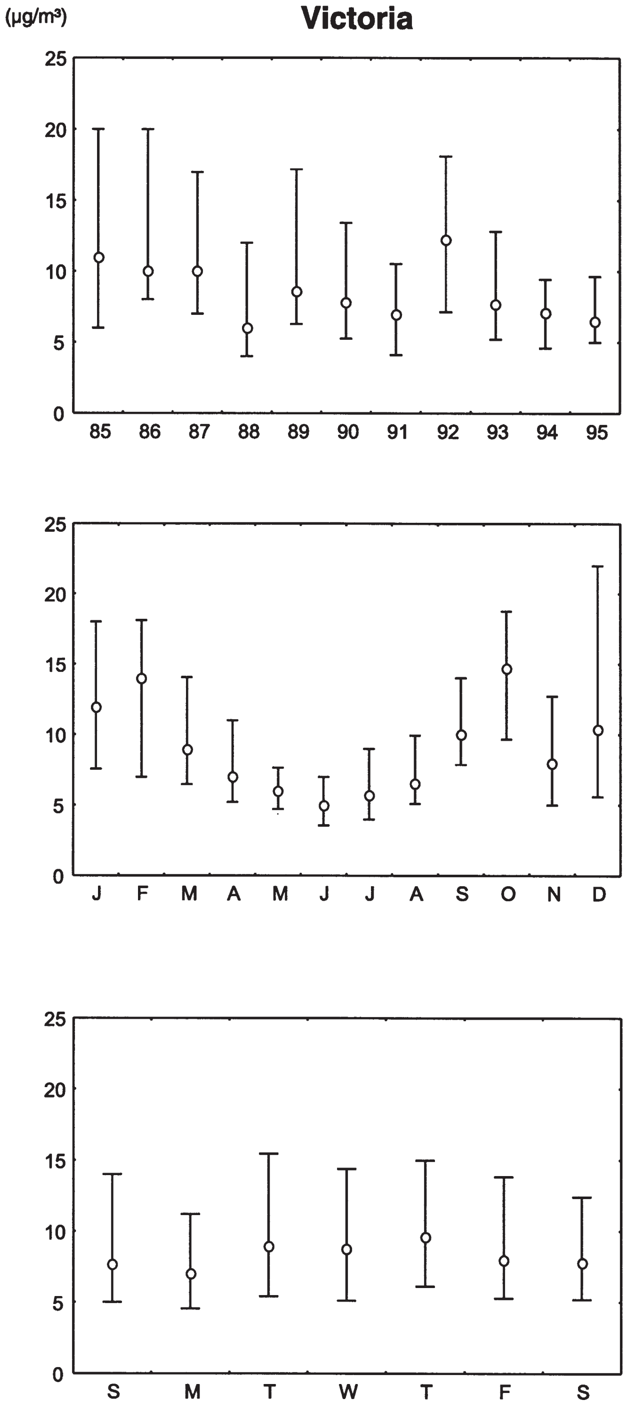


Figure 5.13 The Interquartile Range of $PM_{2.5}$ Concentrations (µg/m³) at National Network Sites by Year, Month and Day of Week. The Plots Indicate the Median, 25th and 75th Percentiles. *(continued)*



British Columbia

Available $PM_{2.5}$ data from the province are summarized in Table 5.17. $PM_{2.5}$ is currently monitored at sites in Prince George, Quesnel, Williams Lake and Chilliwack using various sampling techniques. Short-term monitoring studies have previously been conducted in Vernon and Nakusp. Additional $PM_{2.5}$ data are available from ten locations in southwestern BC which were part of the REVEAL study conducted during the summer of 1993 (Sakiyama, 1994).

Due to the limited amount of data available, inter-site comparisons are difficult to make. Mean concentrations ranged from 7-13 µg/m^3 at those sites having at least one year of data (i.e., Chilliwack and Prince George). At the REVEAL sites, where sampling was limited to the summer months, mean concentrations ranged from 4-11 µg/m^3. Observed concentrations were substantially higher in Vernon and Nakusp (18-23 µg/m^3), where measurements were made during the winter/spring and fall months, respectively. The maximum observed 24 h concentration of 54 µg/m^3 was reported for Prince George.

The frequency of $PM_{2.5}$ data within selected concentration ranges is provided in Table 5.18. Those sites located in the eastern end of the Lower Fraser Valley reported few values greater than 20 µg/m^3 (24 h average). In contrast, $PM_{2.5}$ concentrations exceeded 20 µg/m^3 over 10% of the time at the Prince George site. At the Vernon and Nakusp sites, which operated less than one year, the frequency of $PM_{2.5}$ concentrations greater than 20 µg/m³ rose to greater than 30 and 50%, respectively.

Table 5.17 Summary of 24 h Average $PM_{2.5}$ Concentrations (µg/m³) – British Columbia

Site No.	Location	Monitor Type[a]	Start Date	Last Date[b]	No. of Samples	% Data Available	Min.	Max.	Mean	Std. Dev.
0450307	Prince George Plaza	Partisol	5-Sep-94	26-Jul-96	115	100	2.0	54.0	13.1	8.9
0500827	Vernon Air	Partisol	23-Dec-95	17-May-96	72	100	2.0	49.0	18.1	11.5
E208096	Quesnel Sr. Sec.	TEOM/Accu	29-Nov-95	26-Jul-96	40	100	2.0	39.0	11.4	5.9
E221197	Williams Lake	Partisol	4-Oct-94	26-Jul-96	97	88	2.0	44.0	10.4	7.1
E222142	Nakusp High School	Partisol	24-Sep-95	23-Dec-95	11	73	7.0	44.0	23.1	12.4
E220891	Chilliwack Airport	TEOM	1-Jun-95	26-Jun-96	383	98	2.3	26.9	7.4	3.3
REVEAL	Island West	IMPROVE	18-Jul-93	15-Aug-93	29	100	1.6	11.0	5.7	2.5
REVEAL	Island East	IMPROVE	18-Jul-93	15-Aug-93	21	71	2.7	14.6	5.9	2.6
REVEAL	UBC	IMPROVE	18-Jul-93	15-Aug-93	29	100	4.4	18.0	9.1	3.5
REVEAL	White Rock	IMPROVE	18-Jul-93	15-Aug-93	28	97	4.7	17.0	8.7	3.3
REVEAL	Langley	IMPROVE	18-Jul-93	14-Aug-93	27	96	3.5	15.5	8.8	3.3
REVEAL	Pitt Meadows	IMPROVE	18-Jul-93	12-Aug-93	22	84	2.6	18.0	8.1	3.7
REVEAL	Clearbrook	IMPROVE	18-Jul-93	15-Aug-93	29	100	2.4	21.8	11.4	4.7
REVEAL	Chilliwack	IMPROVE	19-Jul-93	15-Aug-93	27	96	3.1	20.7	9.8	4.2
REVEAL	Agassiz	IMPROVE	18-Jul-93	15-Aug-93	29	100	3.2	22.6	10.1	5.2
REVEAL	Coquihalla	IMPROVE	18-Jul-93	15-Aug-93	28	97	1.2	8.6	4.3	2.1

[a] *Partisol* refers to a low-volume manual sampler. *TEOM* refers to a continuous monitor. The *TEOM/ACCU* system refers to a filter-based sampling system operating off the TEOM bypass line.

[b] *Last Date* refers to last date for which validated data is available, effective 97/01/31.

Table 5.18 Distribution of $PM_{2.5}$ Concentrations – British Columbia

Site I.D.	Name / Location	No. of Samples With Conc. (in µg/m^3)					
		>=0	>10	>20	>30	>40	>50
REVEAL	White Rock	28	9	0	0	0	0
REVEAL	UBC	29	9	0	0	0	0
REVEAL	Pitt Meadows	22	5	0	0	0	0
REVEAL	Langley	27	8	0	0	0	0
REVEAL	Island West	29	2	0	0	0	0
REVEAL	Island East	21	2	0	0	0	0
REVEAL	Coquihalla	28	0	0	0	0	0
REVEAL	Clearbrook	29	15	3	0	0	0
REVEAL	Chilliwack	27	12	1	0	0	0
REVEAL	Agassiz	29	11	3	0	0	0
0450307	Prince George Plaza 400	115	66	14	5	3	2
0500827	Vernon Air – RCMP Bldg	72	51	25	13	5	0
E208096	Quesnel Sr. Sec. School	40	24	2	1	0	0
E221197	NW Energy – Williams Lake	97	37	5	3	1	0
E222142	Nakusp High School	11	10	6	3	2	0
E220891	Chilliwack Airport	383	65	3	0	0	0